Volunteer Lake Assessment Program Individual Lake Reports

TARLETON, LAKE, PIERMONT, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	4,807	**Max. Depth (m):**	20	**Flushing Rate (yr^{-1})**	1.1
Surface Area (Ac.):	315	**Mean Depth (m):**	8.5	**P Retention Coef:**	0.56
Shore Length (m):	6,000	**Volume (m^3):**	10,881,500	**Elevation (ft):**	1305

TROPHIC CLASSIFICATION

Year	Trophic class
1979	OLIGOTROPHIC
1991	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

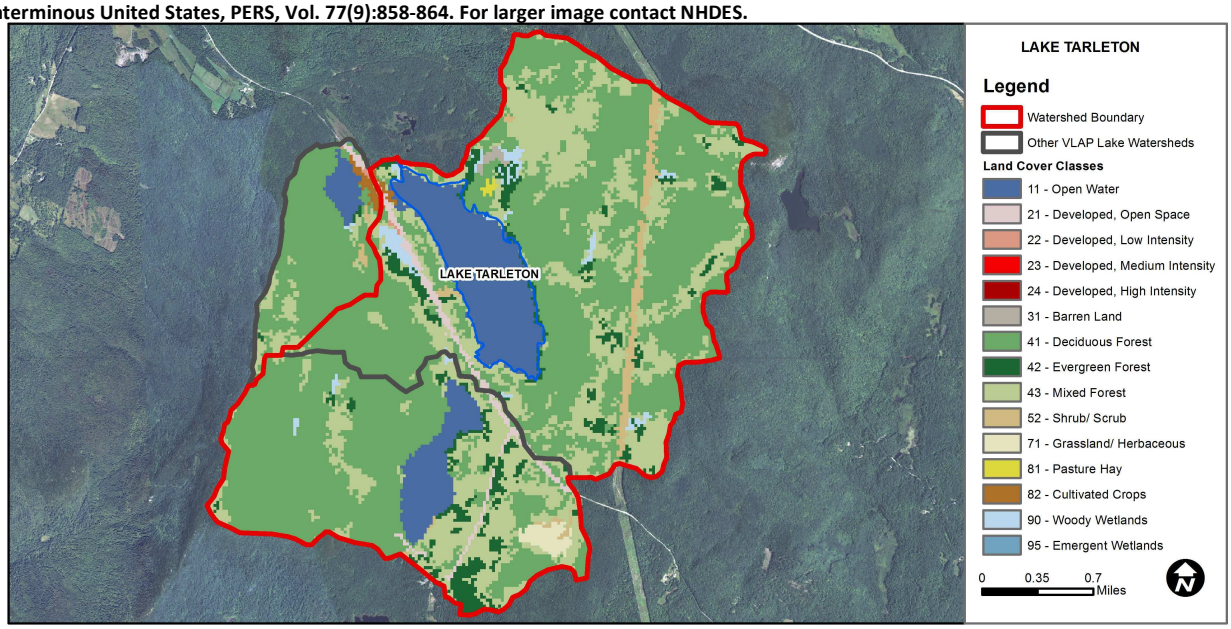
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

LAKE TARLETON - LAKE TARLETON STATE PARK BEACH	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
LAKE TARLETON - KINGSWOOD CAMP BEACH	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	10.6	Barren Land	0.18	Grassland/Herbaceous	0.65
Developed-Open Space	1.48	Deciduous Forest	53.27	Pasture Hay	0.09
Developed-Low Intensity	0.03	Evergreen Forest	4.94	Cultivated Crops	0.13
Developed-Medium Intensity	0	Mixed Forest	25.35	Woody Wetlands	1.2
Developed-High Intensity	0	Shrub-Scrub	1.95	Emergent Wetlands	0

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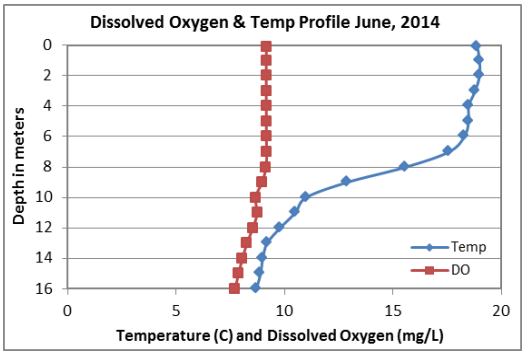
Lake Tarleton, Piermont

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels increased gradually from June to August but remained less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- **Conductivity/Chloride:** Deep spot conductivity remained stable and low from June to August. Historical trend analysis indicates stable Epilimnetic (upper water layer) conductivity since monitoring began. Rt. 25C Inlet conductivity levels were low in June and July and increased in August likely due to low flow conditions. Rt. 25C Inlet chloride levels were slightly greater than the state median but much less than a level of concern.
- **E. coli:** Public Beach and Boat Launch E. coli levels were much less than state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- **Total Phosphorus:** Deep spot phosphorus levels remained low and much less than the state median. Historical trend analysis indicates highly variable epilimnetic phosphorus levels since monitoring began, however epilimnetic phosphorus levels have remained stable since 2010. Rt. 25C Inlet phosphorus levels were stable and low from June to August.
- **Transparency:** Transparency measured without the viewscope (NVS) was low in June and July due to white cap conditions and average transparency decreased slightly from 2013, however remained better than the state median. Historical trend analysis indicates relatively stable transparency with moderate variability between years. Transparency measured with the viewscope (VS) was much better than that without and likely a better representation of actual conditions.
- **Turbidity:** Epilimnetic, Hypolimnetic (lower water layer) and Rt. 25C Inlet turbidities were low on each sampling event. Metalimnetic (middle water layer) turbidity was slightly higher in July likely due to a layer of algae, but was low in June and August.
- **pH:** Epilimnetic pH levels were within the desirable range 6.5-8.0 units and historical trend analysis indicates significantly increasing (improving) epilimnetic pH since monitoring began. We hope to see this continue! Metalimnetic and Hypolimnetic pH levels were less than desirable.
- **Recommended Actions:** Water quality has remained stable and within low to average ranges since monitoring began. We hope to see this continue. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in the watershed. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

Table 1. 2014 Average Water Quality Data for LAKE TARLETON

Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	3.77	2.29		34.7		3	4.33	6.75	0.75	6.75
Metalimnion				36.7		3			0.85	6.30
Hypolimnion				37.3		5			0.45	6.12
Public Beach					10					
Public Launch					10					
Rt. 25C Inlet			8	43.6		6			0.59	6.59

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Stable	Trend not significant; data show low variability.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Improving	Data significantly increasing.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.